

**Field Pea Inoculation Trial  
2002  
NDSU Carrington Research Extension Center**

A field pea inoculation trial was conducted at the NDSU Carrington Research Extension Center to compare inoculant treatments submitted by commercial manufacturers / distributors to an absolute control (no inoculum, no N fertilizer) and a treatment with 60 lbs. total N (soil test + fertilizer) / acre.

The experiment was installed on a Heimdal silt loam soil. A soil test the previous fall indicated 38 lbs NO<sub>3</sub><sup>-</sup>-N / acre in the top 24 inches and adequate phosphate. Cultivar 'Toledo' (green-cotyledon) was sown on 21 May in a randomized complete block design with four replicates. Individual plots were 7 (7") rows wide x 22' long. Weeds were effectively controlled with a preplant application of Sonalan and post-emergence hand rousing. Disease and insect pests were not detected. Although the plants lodged considerably during the reproductive phase, lodging was uniform across the trial and not related to individual treatments.

After an unusually mild winter, the weather during the 2002 season was relatively dry in late May and June, with scattered periods of quite high temperatures. Although plant growth was good, nodulation was poor in all treatments. This was probably due to a combination of above-normal N mineralization and unfavorable weather conditions. Nodulation improved somewhat late in the season, but was not scored.

Pea yields were very good, averaging close to 60 bushels / acre (Table 1). However, no significant differences among treatments were observed for yield or the associated parameters measured, including grain protein concentration and content. Again, these results were probably due to the effects of abnormal weather and soil nitrogen on N<sub>2</sub>-fixation.

Table 1. Field pea performance with various N sources, NDSU Carrington R/E Center, 2002.

Treatment	Yield (lbs/acre)	Test Weight (lbs/bushel)	Seed Weight (g/250)	Grain Protein (%)	Protein Yield (lbs/acre)
Control	3625	63.5	66.7	18.0	651
N Fertilizer <sup>1</sup>	3761	63.2	63.0	16.1	603
CellTech-C	3663	63.4	63.1	19.2	704
NitraStik-C	3439	63.3	64.3	18.1	623
Rhizo-Fix	3441	63.3	61.9	17.6	607
Rhizo-Fix with Polymer	3491	63.3	65.9	18.0	629
Nodulator Granular	3686	63.3	63.2	18.5	683
Rhizo-Flo	3634	63.2	64.2	17.8	646
Rhizo-Stick	3418	63.3	65.2	18.2	623
Self-Stick	3537	63.1	62.9	18.8	667
Soil Implant	3654	63.1	65.6	18.2	666
Mean	3577	63.3	64.2	18.0	646
C.V. (%)	6.9	0.5	3.7	6.8	10.8
LSD (0.05)	NS <sup>2</sup>	NS	NS	NS	NS

<sup>1</sup>60 lbs total N / acre (soil test + fertilizer); fertilizer N broadcast as urea and incorporated before planting

<sup>2</sup>Differences are not statistically significant at P = 0.05